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(54) TELEVISION PROGRAM TABLE RECEIVER

(57)Abstract:

PURPOSE: To display a television(TV) program table and to perform setting operations for the picture recording based on the program table by providing a TV broadcast receiver such as a TV set or a video tape recorder(VTR), etc., with a function automatically receive the program table.

CONSTITUTION: A CPU 10 is programmed so as to discriminate the code of a TV program table received in a prescribed form based on the signal that is superposed on the TV radio wave. The data acquired by the CPU 10 are stored in a memory 11. anwhile the CPU 10 retrieves the desired items out of the data stored in the memory

11 and displays the program table on a TV screen by an instruction given from a program selection/input device 15. When a video recording instruction is received, the CPU 10 retrieves the start time and the end time of a desired program out of the data stored in the memory 11 and controls a VTR at each retrieved time.

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**CLAIMS**

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[Claim(s)]  
[Claim 1] The television broadcasting receiving set which has a means to change into initiation of a program, or the data of end time the data of a television race card sent by said data signal, the means which display by making it a race card, and a means to choose a program from said race card, in the equipment which receives the data signal on which television broadcasting, such as a teletext, was overlapped.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the equipment which receives the data signal on which especially the electric wave of television broadcasting was overlapped about a television receiver and video tape recorder equipment with a television reception function.

[0002]

[Description of the Prior Art] There is a thing which sets up the start time of an image transcription, end time, and a channel number and which can carry out image transcription reservation of a television program to a twist especially in a video tape recorder (it is only henceforth called "VTR") with the reception function of television broadcasting.

[0003] Moreover, the broadcast time of day and the channel number of a television program are coded with some figures, and there is also a VTR which could be made to carry out image transcription reservation only by inputting this figure.

[0004]

[Problem(s) to be Solved by the Invention] However, in order to carry out image transcription reservation of VTR, the above, a code or broadcast time of day, and a channel number must be investigated by the television race card of a newspaper or a magazine.

[0005] Moreover, since such a code or time of day do not have a program name and relation, the image transcription of the program expected also by the mistake of a slight input may not be able to be performed.

[0006] Moreover this invention can be made to make image transcription reservation of VTR by being made in view of the above-mentioned point, and enabling it to see the program chart of television on the screen of television, and choosing a program title on a screen, it enables it to switch a channel in a television receiver.

[0007]

[Means for Solving the Problem] This invention prepares the circuit which takes out and decodes the data signal of the race card on which television broadcasting was overlapped in the equipment which receives the data signal on which television broadcasting, such as \*\*\*\* broadcast, was overlapped in order to attain the above-mentioned purpose.

[0008] Furthermore, the memory which memorizes the data of a race card sent from each broadcasting station, the control circuit which makes these data one race card, the circuit which displays this race card, and the input unit for choosing a program are prepared.

[0009]

[Function] Moreover the television race card receiving set constituted as mentioned above can make image transcription reservation by [ which display a race card on a screen by operating the switch of the above and an input device ] choosing the title of a program in VTR equipment further, it can be changed to the channel corresponding to the title of a program in a television receiver.

[0010]

[Example] Hereafter, one example of this invention is concretely explained with reference to a drawing. In order to put a television race card receiving set in practical use, first, the data of a race card must be made to have to superimpose on the electric wave of television broadcasting, and it must transmit to it.

[0011] In order to make the data signal of a race card superimpose on television broadcasting and to transmit to it, the method of the teletext currently real-employed from November, Showa 60 can be used. This teletext assigns the vertical blanking interval (non-display part) of the image electric wave of television to a written information signal, and sends the data of the alphabetic character coded without affecting an image.

[0012] Drawing 1 is the block diagram showing the configuration of the television receiving set containing the television race card receiving set which is the example of this invention, and includes the function of the television set 1 shown in drawing 1, and the VTR set 2.

[0013] It restores to the signal received from the antenna 3 to a video signal by tuner A4, tuner B5, and the tuner C6.

[0014] the signal to which it restored by tuner A4 should pass the video signal multiplexer 14 (only henceforth a "multiplexer") -- it is sent to the video display 7 (only henceforth a "display"), and the signal to which it restored by tuner B5 and the tuner C6 is sent to VTR8 and the teletext decoder 9, respectively.

[0015] \*\*\*\*\* data are sent to CPU10 with the teletext decoder 9. CPU10 is a program containing the data of a race card, when the race card recognition code 22 which investigates whether the race card (it mentions later) recognition code 22 is contained in this data is contained -- judging -- memory 11 -- \*\* -- it records -- further, CPU10 changes the channel of a tuner C6, and receives the race card data of each broadcasting station.

[0016] If the data of the channel number of a broadcasting station and teletext program number (it is only henceforth called the "program number") which are broadcasting the race card with the data card 16 in advance at this time, and its

broadcast time of day are given, the time amount which initial setting takes can be shortened.

[0017] If a display on the screen of a race card is directed with the race card selection input unit 15, CPU10 reads the title and time of day of a program from the data of memory 11, doubles them at time of day, moreover it constitutes a race card, it will change the input of a multiplexer 14 to a character generator 13, it will use this race card as the pattern of an alphabetic character through a character generator 13, and will display it on a display 7.

[0018] Drawing 2 is the front view having shown the function in which a program chart is displayed on a display 7, by actuation of the program selection input device 15. Since all broadcasting stations cannot be displayed on a screen when there are many broadcasting stations to receive, the broadcasting station received now is displayed in the center. The range to display scrolls by actuation of the switch which chooses a program as the four directions on a screen (migration).

[0019] Drawing 3 is the front view having shown the function which chooses a program from said race card by actuation of the program selection input unit 15. By pushing the switch which chooses a left program, front [ whole ] scrolls on one right and the program currently displayed on left-hand side enters into the central program selection frame 20.

[0020] Drawing 4 is the front view having shown the function which displays program detail data on the display 7 by actuation of the program selection input device 15. If the switch which displays detail data is pushed, CPU10 will investigate the starting position of the detail data 40 from the program (it mentions later) detail pointer 33 of the race card data memorized by memory 11, and will display a series of data which begin from this location on a display 7.

[0021] Drawing 5 is the front view having shown the function which changes a receiving channel to the selected program by actuation of the program selection input device 15. If the switch of a channel change is pushed, CPU10 will change tuner A4 to the channel number equivalent to the program selection frame 20, will change the input of a multiplexer 14 to tuner A4, and will display the program chosen as the display 7.

[0022] Moreover, image transcription reservation of VTR8 can be made by actuation of the program selection input unit 15. If the timer 12 which searches memory 11 and registers the start time of a program into the timer 12 operates while CPU10 will memorize the discernment data of the program chosen as memory 11, if the switch of an image transcription is pushed, CPU10 searches memory 11 again, checks broadcast start time, and when there is modification which makes an image transcription start when there is no modification, it will register new start time into a timer 12 again. When there is modification of broadcast time of day, image transcription start time can be changed by newly broadcasting the changed data of a

race card.

[0023] If the alphabetic character of a character generator 13 is displayed on the image of tuner A4 in piles by the multiplexer 14 at the time of the above and selection of a program and tuner A4 is changed according to selection of a program, an image and a program title will be looked at by coincidence.

[0024] In order to give the function explained until now, it is necessary to send the race card data format-ized so that it could judge by CPU to the program which sends the television race card of a teletext. The item of the data and the example of a format are described below.

[0025] If drawing 6 and drawing 7 incorporate all elements in the program of one teletext which is the specification of the data of a television race card put on the teletext used for this invention, since the capacity of a program will become quite large, a race card is divided into the following two teletext programs, and is sent.

Race-card teletext A: The retrieval code of a program title and program detail data etc. enters.

Race-card teletext B: The contents of program detail data enter.

[0026] Drawing 6 is the data structure diagram of the race card teletext A which sends a television race card. The race card recognition code 22 puts in order the code of the alphabetic character which is not usually used or a notation, and when it is the reception of the 2nd henceforth which is a code used as the key of retrieval when the program number of a television race card is unknown, since the already read data show the program number of the race card teletext A, it does not need it.

[0027] Current time 23 shows current date time of day, and in order [ this ] to use for time-of-day doubling of a timer 12, it does not have the need for time-of-day doubling by the device using this invention.

[0028] A channel number 27 shows the number of the channel of the television broadcasting corresponding to the race card which transmitted. However, since "00" is not necessarily in agreement with the channel number of the broadcasting station sent out first when receiving the electric wave which shows that it is the broadcast race card of a local station and which went via the relay center, if the time of sending especially the race card of an other station is removed, the contents of the channel number 27 are sent as "00."

[0029] The broadcasting station name 28 shows the name of the television station corresponding to the race card which transmitted, and serves as the broadcasting station name display 18 of a program chart.

[0030] The detail program number 26 shows that the race card teletext B does not exist, when the data in which the program number of the race card teletext B is shown are "000." When this number is the same program number as the race card teletext A, the program detail data 40 shall be contained in the race card teletext A.

[0031] The same of the program start time 30 is said of the program start time 34

which shows the broadcast start time of a program and which is used for time-of-day collating of a chart, image transcription reservation of VTR, etc.

[0032] However it uses the program identification code 31 in order to identify this, when the same thing as the contents of the program (it mentions later) title 32 exists, this code is not displayed on the race card of a television screen, and that also of the program identification code 35 which cannot use the value of the race card termination code 39 as data of identification code (it mentions later) is the same as that of it.

[0033] The same of the program title 32 is said of the program title 36 showing the title of a TV program from which this data serves as the program title display 19 of a program chart.

[0034] The program detail pointer 33 shows the starting position of the program (it mentions later) detail data 40 of the race card teletext B. When "0152" is describing as data to the program detail pointer 33, the same is said of the program detail pointer 37 showing what the program detail data 40 are describing from the 152nd alphabetic character of the race card teletext B.

[0035] Four items of the program start time 30, the program identification code 31, the program title 32, and the program detail pointer 33 repeat and describe these four items several minutes of the TV program to transmit used as the data of one program.

[0036] Although the program end time 38 is the same as the program start time 30, since there is next a program (it mentions later) termination code 39, it is used only as end time of a front program.

[0037] The program termination code 39 is the case where the program identification code 31 has a special value, and means termination of the data of the program chart included in the race card teletext A. Suppose that titles, such as "a broadcast termination", are attached and the termination period of broadcast is registered as one of the programs.

[0038] The next broadcasting hours 24 show the latency time until the next race card teletext A and the race card teletext B are broadcast.

[0039] The next program number 25 shows the program number of the next race card teletext A. When a program number is "000", suppose that it broadcasts by the same program number as this time.

[0040] The above, the next broadcasting hours 24, and the next program number 25 are data for receiving the next race card teletext A promptly.

[0041] The footer data 29 are data displayed on the screen of television as footer data display 21 of drawing 2, and can put in messages, such as a sponsor name of a program, and CM, here. The footer data 29 of the channel chosen with the chart are displayed.

[0042] Drawing 7 shows the DS of the race card teletext B which sends a television race card. Although the program detail data 40 can carry an outline, a performer, etc.

of a program, the contents and especially die length serve as data [ as opposed to one TV program even in a delimiter (it mentions later) 41 ] which are not specified. The location of the alphabetic character of the very first of this data is shown by the program detail pointer 33. The same is said of the program detail data 42.

[0043] The same of a delimiter 41 is said of the delimiter 43 which is the data delimiter of the above and the program detail data 40.

[0044]

[Effect of the Invention] As explained above, without carrying out installation of a new antenna and cable laying, the television race card receiving set by this invention receives the data of a race card automatically to a television receiving set, and can be made to make correctly and simple selection of a TV program, and image transcription reservation of VTR.

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the configuration of the television race card receiving set containing VTR equipment which is one example of this invention.

[Drawing 2] It is the front view showing the screen of the actuation which displays a race card on a television screen, and a race card which is one example of this invention.

[Drawing 3] It is the front view showing change of the actuation which chooses a program from the race card of a television screen, and a screen which is one example of this invention.

[Drawing 4] It is the front view which is one example of this invention and in which showing the actuation changed to the channel of the selected program, and the display screen.

[Drawing 5] It is the front view which is one example of this invention and in which showing the actuation which displays the detail data of the selected program, and the display screen.

[Drawing 6] It is the data block diagram which is used for this invention and in which showing the data array of the race card teletext A containing a program title, start time, etc.

[Drawing 7] It is the data block diagram showing the data array of the race card

teletext B including a program detail used for this invention.

[Description of Notations]

- 1 Television Set 2 VTR Set
- 3 Antenna 4 Tuner A
- 5 Tuner B 6 Tuner C
- 7 Video Display 8 VTR
- 9 Teletext Decoder 10 CPU
- 11 Memory 12 Timer
- 13 Character Generator 14 Video Signal Multiplexer
- 15 Program Selection Input Device 16 Data Card
- 17 Time Stamp 18 Broadcasting Station Name Display
- 19 Program Title Display 20 Program Selection Frame
- 21 Footer Data Display 22 Race Card Recognition Code
- 23 Current Time 24 Next Broadcasting Hours
- 25 Next Program Number 26 Detail Program Number
- 27 Channel Number 28 Broadcasting Station Name
- 29 Footer Data 30 Program Start Time
- 31 Program Identification Code 32 Program Title
- 33 Program Detail Pointer 34 Program Start Time
- 35 Program Identification Code 36 Program Title
- 37 Program Detail Pointer 38 Program End Time
- 39 Race Card Termination Code 40 Program Detail Data
- 41 Delimiter 42 Program Detail Data
- 43 Delimiter